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| 10/789,609 | 02/27/2004 | Timothy E. Snodgrass | 03CR254/KE | 9039 |
| 7590 | 11/13/2008 | | EXAMINER | |
| Nathan O. Jensen ROCKWELL COLLINS, INC. 400 Collins Rd. NE Cedar Rapids, IA 52498 | | | VERDI, KIMBLEANN C | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|-----------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/789,609 | SNODGRASS, TIMOTHY E. |
| | Examiner | Art Unit |
| | KimbleAnn Verdi | 2194 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 13 August 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,4-6,8-12,15,19-21 and 23-29 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1, 4-6, 8-12, 15, 19-21, 23-29 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claims 1, 4-6, 8-12, 15, 19-21, and 23-29 are pending in the current application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 28 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. Claim 28 the recitation of “a missile” is not disclosed in the specification.

Thorough review of the specification by the Examiner did not result in finding of the subject matter properly disclosed in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1, 4-8, 9-12, 15, 19-21 and 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertrand et al. (hereinafter Bertrand) (“CORBA™ Delays in a Software-Defined Radio”) in view of Murotake et al. (hereinafter Murotake) (U.S. Publication No. 2005/0108382 A1) and in further view of Anderson et al. (hereinafter Anderson) (“Implementation of a WNW within the JTRS Operating Environment Using Networking APIs”).**

6. Bertrand and Anderson cited in previous Office action

7. As to claim 1, Bertrand teaches the invention substantially as claimed including an apparatus that implements services for a waveform application, the apparatus comprising:

an object request broker (CORBA object request broker, page 153, left col., line 16) that marshals data from the waveform application for communication (page 152, Fig. 1 and page 155, left col., lines 58-61).

8. Bertrand does not explicitly teach wherein at least a portion of the object request broker is implemented in hardware;

an object request broker interface that communicates the marshaled data using a memory pool; and

wherein the portion of the object request broker and the portion of the object request broker interface implemented in hardware comprises a programmable application specific integrated circuit.

9. However Murotake teaches wherein at least a portion of the object request broker is implemented in hardware (paragraphs [0019], lines 7-11; [0050], lines 1-7 and [0052], lines 1-2); wherein the portion of the object request broker and the portion of the object request broker interface implemented in hardware comprises a programmable application specific integrated circuit (paragraphs [0019], lines 7-11 and [0050], lines 1-7).

10. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the ORB of Bertrand with the teachings of an ORB implemented in a hardware device from Murotake because this feature would have provided a mechanism for accelerating the performance of the ORB and reduces the footprint running in the general purpose processing unit (paragraph [0052], lines 1-4 of Murotake).

11. Bertrand as modified by Murotake does not explicitly disclose an object request broker interface that communicates the marshaled data using a memory pool.

12. However Anderson teaches an object request broker interface (commercial Object Request Brokers (ORBs), Fig. 6) that communicates the marshaled data using a memory pool (used pointers to shared memory to address transport delays, transfer methods supported by ORBs, page 975, right col., lines, 36-48, upgrade to shared memory approach used in Rockwell Collins Link 16 port to the JTRS SCA under JTRS Step 2b, left col., lines 29-31).

13. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the ORB communication mechanism of Bertrand as modified by Murotake with the teachings of shared memory from Anderson because this feature would have further provided a mechanism to address the transport delays of the CORBA™ call copying of data (page 975, right col., lines 36-42 of Anderson).

14. As to claim 4, Bertrand teaches wherein the object request broker interface comprise a pluggable protocol interface (e.g. ease of technology insertion, CORBA™ hides details of the hardware architecture, left col., lines 30-44).

15. As to claim 5, Bertrand as modified by Murotake and further modified by Anderson wherein the object request broker interface comprises a custom interface (part of SCA OE Framework, specified interface for CORBA™, page 972, left col., line 46, right col., lines 1-5 of Anderson).

16. As to claim 6, Bertrand teaches wherein the object request broker is a common object request broker architecture broker (page 153, left col., line 16).

17. As to claim 8, Bertrand as modified by Murotake teaches wherein the at least a portion of the object request broker that is implemented in hardware comprises logic and data formatting functions (paragraph [0052], lines 4-6 of Murotake) that are determined to consume excessive processor throughput for a software application (paragraph [0052], lines 1-6 of Murotake).

18. As to claim 9, Bertrand as modified by Murotake teaches an operating system protocol stack (paragraph [0020], lines 1-7 of Murotake), wherein the operating system protocol stack is implemented in hardware ([0020], lines 7-10 of Murotake).

19. As to claim 10, this claim is rejected for the same reasons as claim 1, see the rejection to claim 1 above.

20. As to claim 11, this claim is rejected for the same reasons as claim 8, see the rejection to claim 8 above.

21. As to claim 12, this claim is rejected for the same reasons as claim 9, see the rejection to claim 9 above.

22. As to claim 15, Bertrand teaches the invention substantially as claimed including a system for a joint tactical radio system (JTRS) compliant device that provides communication at low power requirements, the system comprising:

an object request broker (ORB) (CORBA™ object request broker, page 153, left col. , line 16) that marshals data from a waveform application (page 152, Fig. 1 and page 155, left col., lines 58-61);

a pluggable protocol interface (e.g. ease of technology insertion, CORBA™ hides details of the hardware architecture, left col., lines 30-44) that communicates the marshaled data from the hardware-implemented ORB (CORBA™ middleware, can perform a data format translation, converting data to a format appropriate to the receiving, left col., lines 5-7).

23. Bertrand does not explicitly teach wherein at least a portion of the object request broker is implemented in hardware rather than software;

wherein at least a portion of the pluggable protocol interface is implemented in hardware;

wherein the portion of the pluggable protocol interface and the portion of the ORB implemented in hardware comprise logic and data formatting functions of the ORB that are determined to consume excessive processor throughput for a software application and an interface implemented as a programmable application specific integrated circuit; and

a memory pool that communicates data from the pluggable protocol interface directly and without transport overhead.

24. However Murotake teaches wherein at least a portion of the object request broker is implemented in hardware rather than software paragraphs [0019], lines 7-11; [0050], lines 1-7 and [0052], lines 1-2);

wherein at least a portion of the pluggable protocol interface is implemented in hardware paragraphs [0019], lines 7-11; [0050], lines 1-7 and [0052], lines 1-2);

wherein the portion of the pluggable protocol interface and the portion of the ORB implemented in hardware comprise logic and data formatting functions of the ORB (paragraph [0052], lines 4-6) that are determined to consume excessive processor throughput for a software application (paragraph [0052], lines 1-6) and an interface implemented as a programmable application specific integrated circuit (paragraphs [0019], lines 7-11 and [0050], lines 1-7).

25. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the ORB of Bertrand with the teachings of an ORB implemented in a hardware device from Murotake because this feature would have provided a mechanism for accelerating the performance of the ORB and reduces the footprint running in the general purpose processing unit (paragraph [0052], lines 1-4 of Murotake).

26. Bertrand as modified by Murotake does not explicitly disclose a memory pool that communicates data from the pluggable protocol interface directly and without transport overhead.

27. However Anderson teaches a memory pool (e.g. shared memory) that communicates data from the pluggable protocol interface directly and without transport overhead (CORBA™ call copying of data used pointers to shared memory to address transport delays, transfer methods supported by ORBs, page 975, right col., lines, 36-48, upgrade to shared memory approach used in Rockwell Collins Link 16 port to the JTRS SCA under JTRS Step 2b, left col., lines 29-31).

28. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the ORB communication mechanism of Bertrand as modified by Murotake with the teachings of shared memory from Anderson because this feature would have further provided a mechanism to address the transport delays of the CORBA™ call copying of data (page 975, right col., lines 36-42 of Anderson).

29. As to claim 19, Bertrand as modified by Murotake and further modified by Anderson teaches the system of claim 15, wherein the JTRS compliant device is in an unmanned craft (radio prototype tested in the field with Vehicular, right col., lines 11-12 of Anderson).

30. As to claim 20, Bertrand as modified by Murotake and further modified by Anderson teaches the system of claim 15, wherein the JTRS compliant device is a battery powered radio (single channel JTRS wideband radio prototype, right col., line 14 of Anderson).

31. As to claim 21, Bertrand as modified by Murotake teaches wherein no middleware is used (paragraph [0059], lines 2-4 of Murotake).

32. As to claim 23, this claim is rejected for the same reasons as claim 21 since claim 23 recites the same or equivalent invention, see the rejection to claim 21 above.

33. As to claim 24, Bertrand as modified by Murotake teaches wherein the pluggable protocol interface is entirely implemented in hardware (paragraphs [0019], lines 7-11 and [0050], lines 1-7 of Murotake).

34. As to claim 25, Bertrand as modified by Murotake teaches wherein the object request broker is entirely implemented in hardware (paragraphs [0019], lines 7-11 and [0050], lines 1-7 of Murotake).

35. As to claim 26, this claim is rejected for the same reasons as claim 21 since claim 26 recites the same or equivalent invention, see the rejection to claim 21 above.

27. As to claim 27, Bertrand as modified by Murotake and further modified by Anderson teaches wherein the JTRS compliant device is in an unmanned ground sensor (i.e. terrestrial application, page 973, right col., lines 18-21 of Anderson).

28. As to claim 28, Bertrand as modified by Murotake and further modified by Anderson teaches wherein the JTRS compliant device is in a missile (i.e. airborne application, page 973, right col., lines 18-21 of Anderson).

36. As to claim 29, this claim is rejected for the same reasons as claim 9 since claim 29 recites the same or equivalent invention, see the rejection to claim 9 above.

Response to Arguments

37. Applicant's arguments with respect to claims 1, 4-6, 8-12, 15, 19-21, and 23-29 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

38. The combination of claims 15 and 29 are objected to, but would be allowable if rewritten in independent form including all of the limitations of the combination of claims 15 and 29.

Conclusion

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KimbleAnn Verdi whose telephone number is (571)270-1654. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST..

40. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

41. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 6, 2008
KV

/Li B. Zhen/
Primary Examiner, Art Unit 2194